

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently amended) A drive circuit for an LED array ~~which comprises~~ including a first LED cluster (40) and at least one second LED cluster (42; 44), comprising:

a switch (S1, S2, S3) ~~being~~ arranged in series with each ~~LED cluster~~ of the first and second LED clusters (40, 42, 44), and each of the first and second LED clusters ~~LED cluster~~ (40, 42, 44) having a supply terminal via which it ~~can be connected~~ is coupled to a supply voltage (U_{Batt}), ~~it being possible to drive each~~ wherein said switch (S1, S2, S3) is adapted to be driven so as to permit a current flow in ~~the associated~~ an LED cluster from among the first and second LED clusters that is associated therewith,

~~having~~ a control loop (46) ~~which is designed to drive~~ for driving the switch (S1) of the first LED cluster (40) so as to achieve a constant mean value of the current (I_{LED}) flowing through the first LED cluster (40), and the control loop (46) ~~being designed to drive~~ driving at least one switch (S2, S3) of a second LED cluster (42, 44), ~~characterized in that the drive circuit further comprises:~~

a total current detection device (R_{Mess}) for determining ~~with the aid of which it is possible to determine~~ an actual magnitude (U_{Mess}) which corresponds to ~~the~~ a sum of the currents through at least two, ~~in particular through all~~ of the second LED clusters (42, 44), and

a comparison unit (50, 50a) ~~in which~~ for comparing the actual magnitude (U_{Mess}) ~~can be compared~~ with a prescribable desired magnitude (U_{OL}).

2. (Original) The drive circuit as claimed in claim 1, characterized in that the desired magnitude (U_{OL}) can be set by a user.

3. (Previously presented) The drive circuit as claimed in claim 1, characterized in that the comparison unit (50, 50a) is designed to output an information signal (78) in the event of undershooting of the desired magnitude (U_{OL}) by the actual magnitude (U_{Mess}).

4. (Previously presented) The drive circuit as claimed in claim 1, characterized in that it comprises a monitoring unit (50, 50b) with which the current flow through the first LED cluster (40) can be monitored.

5. (Original) The drive circuit as claimed in claim 4, characterized in that the monitoring unit (50, 50b) is designed in such a way that the control loop (46) is disconnected when a current flow which is outside a prescribable tolerance range is determined in the first LED cluster (40).

6. (Original) The drive circuit as claimed in claim 4, characterized in that the monitoring unit (50, 5b) is designed in such a way that the first LED cluster (40) is disconnected when a current flow which is outside a prescribable tolerance range is determined in the first LED cluster (40), and a second LED cluster (42, 44) is made relative to the first LED cluster.

7. (Previously presented) The drive circuit as claimed in claim 1, characterized in that it also comprises an undervoltage detection device (64) which is designed to output an undervoltage warning signal (76) when the supply voltage (U_{Batt}) falls below a prescribable value (U_{Ref}).

8. (Original) The drive circuit as claimed in claim 7, characterized in that the prescribable value (U_{ref}) is equal to or greater than the sum of the forward voltages of all the LEDs of an LED cluster (40, 42, 44).

9. (Previously presented) The drive circuit as claimed in claim 7, characterized in that the prescribable value (U_{Ref}) can be set manually or can be prescribed permanently.

10. (Previously presented) The drive circuit as claimed in claim 3, characterized in that it also comprises an output unit (50, 50c, ST1) to which the information signal (78) and/or the undervoltage warning signal (76) can be transmitted.

11. (Original) The drive circuit as claimed in claim 10, characterized in that the output (50, 50c, ST1) comprises at least one transistor (ST1) which is located in an open collector circuit and whose base is connected to the comparison unit (50a) for the purpose of transmitting the information signal (78), and/or is connected to the undervoltage detection device (64) for the purpose of transmitting the undervoltage warning signal (76).

12. (Previously presented) The drive circuit as claimed in claim 1, characterized in that it

also comprises a closing delay device (74) which is designed to deactivate the output unit (50, 50c, ST1) for a predetermined time after the closure of the drive circuit.

13. (Previously presented) The drive circuit as claimed in claim 10, characterized in that the output unit (50, 50c, ST1) comprises a flip-flop (88), the base of the transistor (ST1) being connected to the output of the flip-flop (88), and the set input (S) of the flip-flop (88) being connected to the undervoltage detection device (64) in order to transmit the undervoltage warning signal (76), and/or being connected to the comparison unit (50a) in order to transmit the information signal (78).

14. (Previously presented) The drive circuit as claimed in claim 12, characterized in that the closing delay device (74) is designed to apply a closing delay signal (80) to the reset input (R) of the flip-flop (88) of the output unit (50, 50c, ST1) over the duration of the closing delay.

15. (Previously presented) The drive circuit as claimed in claim 1, characterized in that the actual magnitude (U_{Mess}) corresponds to a time average value of the sum of the currents through at least two, in particular through all of the second LED clusters (42,44).

16. (Currently amended) A method for operating an LED array including which ~~comprises~~ a first LED cluster (40) and at least one second LED cluster (42, 44), comprising:

a switch (S1, S2, S3) ~~being~~ arranged in series with each of the first and second LED clusters ~~LED-cluster~~ (40, 42, 44), and each of the first and second LED clusters ~~LED-cluster~~ (40, 42, 44) having a supply terminal via which it is coupled ~~can be connected~~ to a supply voltage (U_{Batt}), comprising ~~the following steps:~~

- a) driving ~~the~~ a switch (S1) of the first LED cluster (40) with a drive signal (CLK) ~~so as~~ to achieve a constant mean value of ~~the~~ current (I_{LED}) flowing through the first LED cluster (40), and driving the at least one second LED cluster (42, 44) with the same drive signal (CLK)[[.]]; ~~and~~
- b) measuring an actual magnitude (U_{Mess}) which corresponds to ~~the~~ a sum of the currents through at least two, ~~in particular through all~~ of the second LED clusters (42, 44)[[.]]; and
- c) comparing the actual magnitude(U_{Mess}) with a prescribable desired magnitude (U_{OL}).

17. (new) A drive circuit for an LED array including a master LED cluster connected to a supply voltage and at least two slave LED clusters connected to the supply voltage, comprising:

a plurality of semiconductor switches arranged between the LED clusters and the supply voltage for allowing drive current to be supplied in a pulsed manner to each LED cluster;

a first current detection device for measuring a total master current I_{Mess} between the master LED cluster and a ground;

a second current detection device for measuring a total combined slave current I_{Mess} between the at least two slave LED clusters and the ground;

a control loop for controlling a master semiconductor switch in the master LED cluster such that a constant mean value of master LED current (I_{LED}) is achieved in the master LED cluster, the control loop also driving each semiconductor switch in the at least two slave LED clusters; and

a diagnosis unit that compares a desired slave LED total current I_{OL} to the total combined slave current I_{Mess} of the at least two slave clusters, and that produces an error signal if the total combined slave current I_{Mess} of the at least two slave clusters falls below the desired slave LED total current I_{OL} .

18. (new) The drive circuit as claimed in claim 17, wherein the desired slave LED total current I_{OL} can be set by a user.